Railways of Canada

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[Read at Senior Fourth Grade Meeting of the Toronto Teachers' Institute]

THOUGH railroads seem so modern to us, the iron horse became a factor in transportation away back in 1825, when George Stephenson ran the first train between Stockton and Darlington in England. As soon as the success of Stephenson's road was assured the agitation for railways on this side of the Atlantic began, and five years later (1830) a little locomotive was puffing up and down a portion of what is now known as the New York Central.

In 1832 the railway era of Canada was inaugurated by the legislature of Lower Canada granting a charter to a company to construct a railway from Laprairie, opposite Montreal, to St. John's on the Richelieu River, a distance of sixteen miles. This line, called the Champlain and St. Lawrence, was completed and opened in 1836, and constituted a part of the route between Montreal and New York *via* the Richelieu River, Lake Champlain and the Hudson. The first train consisted of four cars, drawn by horses, locomotive power being adopted the following year. The rails were made of oak with flat bars of iron spiked on them, the gauge being five and a half feet.

For eleven years these sixteen miles remained the only bit of railroad in Canada, but by the year 1850 the mileage had increased to sixty. At the time of Confederation, 1867, there were 2278 miles of road. Since that date there has been an average annual increase of nearly 540 miles, until to-day Canada, with its eight millions of people, has 27,000 miles of road—enough to girdle the globe once and leave two thousand miles for double tracking. Of this mileage ninety per cent. is controlled by five companies, the Grand Trunk, the Intercolonial, the Canadian Pacific, the Canadian Northern and the Grand Trunk Pacific.

Just two years after Stephenson had completed his first line in England there began a strong agitation in St. Andrews, N.B., in support of the building of a railway from that point to the city of Quebec, and in 1836 the St. Andrews and Quebec Railway Company was incorporated. The Imperial Government voted $50,000 to be expended in the exploration and survey of the proposed line and work was begun

immediately. At that time the country through which the survey was prosecuted was held to be wholly British territory, but in the following year (1837) the United States government made objection to the route proposed on the ground that a part of the territory was theirs. Notification of this fact was given to the Canadian government and to that of New Brunswick, and immediately the British authorities ordered work to cease until the boundary dispute was settled. In 1842, by the Ashburton Treaty, or as Lord Palmerston termed it the "Ashburton Capitulation", the northern portion of the present State of Maine was lost by Canada. As a result no further attempt was made to proceed with the proposed line, much of which would, under the new conditions, be in United States territory. This may be looked upon as the first effort to build what we now term the Intercolonial Railway of Canada.

Between 1832 and 1845 more than a dozen charters were granted in the two Canadas. It was at this time that the London and Gore Railway Company obtained a charter for a road from Burlington Bay to London, to be extended to the navigable waters of the Thames and Lake Huron. This was the legislative beginning of that important line, the Great Western, which was afterwards absorbed by the Grand Trunk System.

Among other proposed lines was one designed to restore the ancient portage route around the Falls of Niagara. The line extended from Queenston to Chippewa, but owing to the steepness of the grades near Queenston being beyond the locomotive capacity of the day, it was found necessary to use horses in moving the cars. Soon the road fell into disuse. The charter was amended in 1852 and the line altered to run from Lake Ontario to Suspension Bridge and Niagara Falls.

In 1854 a charter was granted the Atlantic and St. Lawrence Railroad authorising the construction of a line to run between Montreal and Portland, Maine, to afford access to an open winter port, which would be available during the closed season for Canadian ports.

In 1851 the first sod of the Northern Railway of Canada—the pioneer line of Toronto—was turned amid imposing ceremonies by Lady Elgin, and the first train ran from Toronto to Bradford in 1853.

It was about this time that Canadians began to consider seriously the great need for railways. Previously attention had been more particularly directed to the improvement of the water communication of the St. Lawrence Valley; and the Lachine, Welland, Chambly and other canals afford striking evidence of the public spirit of the Canadian people at this time. Now railway competition from the United States threatened to divert traffic from them. Shrewd Canadians saw that they, too, must build railways.

The Grand Trunk.—In 1851 legislation was granted authorizing the construction of a railroad from Toronto to Montreal. In the following year, however, additional legislation was obtained permitting the various companies authorised to build lines: (*a*) from Toronto to Montreal; (*b*) from Montreal to American boundary in the direction of Portland, Maine; (*c*) from Quebec to Richmond, and (*d*) from Quebec to Trois Pistoles, to unite in one general scheme. It was under the provisions of this Amalgamating Act that the Atlantic and St. Lawrence Railway from Portland to the Canadian boundary was leased for 999 years. The company securing control of these lines became known as the Grand Trunk Railway of Canada.

The section from Portland to Montreal was opened in 1853; from Montreal to Toronto in 1856; and from Toronto to Sarnia in 1858. It was not, however, until 1860 that the through line from Portland to Sarnia was completed by the opening of the Victoria Bridge, designed by Robert Stephenson, across the St. Lawrence River at Montreal.

The construction of the railway as outlined was materially assisted by subsidies and bonuses voted by the government of Canada as well as the aid extended by the provinces and municipalities through which the lines passed.

Gradually the system was extended by building new lines or by securing the lease of lines already constructed or under construction. In 1863 the pioneer of Canadian lines (Champlain and St. Lawrence) was leased, and four years later the Buffalo and Lake Huron was secured by a lease in perpetuity. Owing to the inconvenience and expense suffered by the transfer of traffic by means of ferry service between Fort Erie and Buffalo a suitable bridge to accommodate the traffic was constructed over the Niagara River in 1870.

After experiencing severe and unwise competition with the Great Western which controlled lines extending from the Niagara River to Detroit and Sarnia, as well as a line from Detroit to Grand Haven on Lake Michigan, the two systems amalgamated in 1882 with 2835 miles of line.

The next important step in the formation of the present system was the leasing, in 1884, of the Midland Railway, consisting of the line between Port Hope and Midland together with a number of branch lines occupying the territory between Lake Ontario and the Georgian Bay with a mileage of 472½ miles.

The Northern Railway of Canada and the Hamilton and North-Western Railway Company, with a mileage of 482½, miles were secured in 1888. The lines added extended from Port Dover to Collingwood (*via* Hamilton), from Toronto to Collingwood and Meaford, from

Colwell to Penetang, from Beeton to Nipissing Junction (near North Bay) where connection was made with the main line of the Canadian Pacific.

In addition to several short lines in Quebec, the road extending from Port Dover and Simcoe to Durham, Owen Sound and Wiarton was secured in 1893.

Another important addition was the purchase of the Canada Atlantic in 1905 with lines extending from Depot Harbour eastward through Ontario and on to Alburgh Junction, Vermont, with several feeders, making 457 miles in all. In securing this railway the company also acquired the Canada Atlantic Transit Company which owned and operated a number of steamships on the Upper Lakes between the Georgian Bay port terminals of the Grand Trunk—Depot Harbour, Midland, Sarnia, etc., and Fort William, Duluth, Milwaukee and Chicago.

While these additions were being made in Canada the company was also extending across the border from time to time. Among the extensions into the United States were lines from Sarnia and Windsor to Toledo, Chicago, Grand Haven, Milwaukee, etc., in the west, while in the east the Central Vermont with subsidiary lines was acquired and so extended to Long Island Sound. This afforded steamship connection with New York where valuable terminal docks are owned by the company.

The company has also secured running rights—by a joint trackage agreement—over numerous roads where it was not deemed advisable to build a parallel line.

In the early days of the Grand Trunk there were three different gauges—broad, five feet six inches; narrow, three feet six inches, and standard four feet eight and a half inches. The great inconvenience of the different gauges was soon realised. Growing traffic made the interchange of cars a necessity, and gradually all roads conformed to the present standard width four feet eight and a half inches. In altering their line in this regard the Grand Trunk made a record for speed, changing the 420 miles of road between Montreal and Stratford to standard gauge in just eight hours. To-day a car can be sent from almost any one part of the continent to any other over a score of different railways. The beneficial economics resulting from this unrestricted car interchange are hard to estimate.

In the matter of rails, too, there has been a great change. No longer do we see the clumsy old "pear head" of cast iron. The hollow U-shaped rail has also been relegated to the scrap heap. Even the T-rail has greatly changed, and the light 56-pound rail that was considered the

acme of excellence for the small engines of twenty-five and thirty years ago look woefully inadequate compared to the highly-tempered 90-pound steel rails which bear the terrific weight of the modern locomotive.

To facilitate matters between Sarnia and Port Huron a tunnel was constructed under the St. Clair River in 1891. Electric power is now used instead of steam in taking trains through this tunnel. Car-ferries sufficiently large to carry a train of thirty cars run between Cobourg and Charlotte. Owing to the increased business it has been found necessary to double-track many of the more important lines.

Of the three thousand miles of this system in Canada a very large proportion of it runs through Ontario, and so gives it a commanding position in this province. Besides entering all the cities it is in touch with 68 of the 100 incorporated towns. The incorporated villages number 75 of which 51 are on the Grand Trunk and 33 are reached exclusively by that line.

The Intercolonial Railway.—A recent magazine writer declares that "railways in Canada, regarded historically and economically, are a sort of by-product". He further adds that "the twenty-seven thousand miles of rails that have been laid throughout the Dominion have not been put down for the sole purpose of carrying freight and returning profits to railway companies. Putting it more positively, nation-building has been, and is to-day, Canada's chief industry, and the business of making and operating railways has grown to be a large contributory branch". This is very clearly the case in the construction of the Intercolonial Railway—the Government road.

We have already seen how a futile effort had been made in the "forties" to connect St. Andrews on an arm of the Bay of Fundy with Quebec. Scarcely had this effort failed when another project for connecting the Maritime Provinces with the Canadas was proposed. Largely through the lukewarmness of Joseph Howe of Nova Scotia, this resulted in failure. After a short delay New Brunswick and Nova Scotia, each upon its own account, took up the work of constructing such local lines as the trade of the province required, and this was the condition in 1867 when the construction of the Intercolonial became one of the conditions of Confederation. The Intercolonial was not promoted by a commercially-minded people. Their desire was to lay the foundations of a nation, and two steel bands connecting the various parts of the new Dominion were the strongest cohesive force that the statesmen of that day could think of. The construction of the Intercolonial was undoubtedly the means of bringing the Atlantic provinces into Confederation and was the chief factor in transforming Nova Scotians and New Brunswickers into Canadians.

It is quite true that some work on what now comprises the Intercolonial was undertaken before 1867 under Sandford Fleming, but it was not until after Confederation that work was carried on with activity. The various lines that had been constructed by the governments of Nova Scotia and New Brunswick were reconstructed and connections made in 1872. For a time its western terminus was Riviere du Loup, then after a long delay it reached Levis, opposite Quebec, and a still longer time elapsed before it reached Montreal (1897) which is now its western terminus.

Starting at Montreal the line takes the shortest and most direct route to Point Levis. Following the south shore of the Lower St. Lawrence it makes its way among the picturesque French-Canadian villages. Beyond these it traverses the beautiful Matapedia valley. Crossing the Restigouche it follows the south shore of the Bay of Chaleur, and runs down the Gulf side of New Brunswick to Moncton, beyond which it enters Nova Scotia by way of the isthmus of Chignecto, and continues on to Halifax *via* Truro. Eastern Nova Scotia is fairly well covered by various branches extending as far as Cape Breton. In New Brunswick a branch runs to Fredericton, the capital, and at Moncton it throws off branches to St. John on the west and Point du Chene on the east. There are other smaller side lines in both provinces which make up a mileage of 1456 miles, of which 40 miles are only leased.

The Intercolonial touches six Atlantic ocean ports, viz., Sydney, Halifax, St. John, Point du Chene, Quebec and Montreal.

In addition to the Intercolonial the entire railway system of Prince Edward Island is owned and operated by the Dominion Government. This railway traverses the province from end to end and with its several branches makes up a system of 268 miles. So completely does the system cover the Province that no part of the Island is 15 miles distant from the rails. There the narrow gauge still prevails.

Canadian Pacific Railway.—Following the construction of the Intercolonial and the binding together of Quebec and the Atlantic Provinces came the entry of British Columbia into Confederation and the pledge to connect the East with the distant shores of the Pacific. It was not a new project, but was none the less a daring one in its inception, its execution and its completion. In 1834 the idea was a favourite one with Thomas Dalton, editor of the Toronto *Patriot*. Sir Richard Bonnycastle, in 1846, had written of an iron belt from the Atlantic to the Pacific; Sir John Harvey, in the succeeding year, spoke to the Nova Scotia Legislature of "a great chain of communication which may be destined at no remote period to connect the Atlantic with the Pacific Ocean". Speaking at a banquet in Halifax about the middle of last

century Joseph Howe declared that "many in this room will live to hear the whistle of the steam engine in the passes of the Rocky Mountains". About the same time Alan Macdonell of Toronto tried to organise a company for the construction of a Pacific Railway. Others who favoured or advocated the project in succeeding years were the Hon. James Young of Montreal, Chief Justice Draper, Sir Edward Bulwer Lytton, Lord John Russell, Sir S. Cunard, and Sir Sandford Fleming.

But it was in the main a theoretical dream until, in 1870, the government of Sir John A. Macdonald agreed to its construction as the only means of bringing British Columbia into Confederation, and the only method of making that union a practicable and serviceable one. From that time until 1880 the question was much discussed but little practical progress was made. Sir Sandford Fleming was appointed Engineer-in-Chief. The result of his surveys showed more clearly than had been generally understood the tremendous difficulties of the undertaking

Then came the battle of the companies, headed respectively by Sir Hugh Allan, J. J. C. Abbott, and Donald A. Smith in Montreal, and by Sir D. L. Macpherson, Sir Frank Smith and others of Toronto. The Pacific Scandal followed, and the Mackenzie government was formed. The Liberal policy of constructing sections of the road so as to connect with and utilise various bodies of water was proceeded with. Finally the Conservative government came back into power, and in 1881, the contract for the construction of the Canadian Pacific was approved by Parliament. The chief promoters were George Stephen (afterwards Lord Mountstephen), Donald A. Smith (now Lord Strathcona and Mount Royal), R. B. Angus, James J. Hill and Duncan McIntyre. Sir Wm. C. Van Horne came from the United States and directed the destinies of the road for twenty years either as General Manager or President. The Company undertook to build and operate the line for a consideration of $25,000,000 and 25,000,000 acres of land selected along its route, together with the right of way through public lands and the necessary ground for stations, docks, wharves, etc. Steel rails, telegraph wire and other dutiable articles were to be admitted free for its first construction. Parts of the road then built were to be handed over by the Government and no line running south in competition was to be permitted.

Great difficulties were encountered from the first. Construction on the north shore of Lake Superior was a veritable problem in engineering science, and piercing the Rockies and Selkirks was something which has seemed to the traveller of late years a new wonder of the world. Criticism in financial circles, bitter deprecation in political circles, lack of

faith in the public itself, met the company at every turn. The chief [illegible] and partners in the enterprise staked not only their reputation but their fortune on it, and more than once absolute and complete failure stared them in the face. Once the Dominion Government, after grave hesitation and under serious protest from members of its own party as well as the Opposition, advanced $35,000,000 and practically saved the enterprise and its promoters from ruin. The whole amount was repaid [illegible] in a few years. By the terms of the contract the Railway was to be completed in 1890. A [illegible] last spike of the [illegible] was driven by Sir Donald A. Smith on November 7th, 1885. It was the successful end of perhaps the greatest financial and [illegible] enterprise of the nineteenth century. The Government of Canada was involved, for good or ill, in the result; the fortunes of the leading men of Montreal were staked upon it; the welfare of the Bank of Montreal through its manager, Mr. R. B. Angus, was concerned in it; the fate of the Conservative party depended upon its issue, while the unity of the western and eastern provinces hung upon its completion. Great fortunes ultimately came to the promoters, and peerages and honours were showered upon them.

To the country the importance of the completion of this road can hardly be overestimated. Towns and villages grew up in a night and remained as the centre of populous agricultural, lumbering or mining regions. Branch lines were sent out in every direction and the great North-West opened up to settlement and cultivation. Port Arthur, Fort William, Rat Portage (now Kenora), Calgary, Vancouver, grew from nothing into towns, and the last named became an important rival of San Francisco.

For a country, so sparsely populated as was Canada, to construct a railway across the continent was a remarkable achievement. During the quarter of a century since its completion its growth and expansion have been quite as wonderful. From comparatively small beginnings it has developed into a world-encircling institution with magnificent fleets on inland and ocean waters. Its red and white checkered flag floats over 16 Atlantic liners, 22 steamers on the Pacific coast, 5 on the Great Lakes, in addition to many others on the inland waters of British Columbia. The recent acquisition of the Dominion Atlantic Railway in Nova Scotia has been added to its [illegible] service.

The construction of the Canadian Pacific was the beginning of a new era of progress, the completion of Canadian unity in a material sense, the injection of a new commercial, financial and national life into the veins of the Dominion. So potent a factor has it been in many

ways in the history of our country that it may well be termed an Empire Builder.

By absorption of minor roads and by general construction the Canadian Pacific at present controls over 12,000 miles of road in Canada.

The Canadian Northern.—The Canadian Northern began business in Manitoba about Christmas, 1896, with a hundred miles of line running between Gladstone and Dauphin. The equipment of this line consisted of three locomotives and 18 cars. Two trains a week each way formed the schedule. As Sir Donald Mann says, "There was no danger of a collision". The staff consisted of 13 men and a boy, and the monthly pay roll was $500. The gross revenue was $60,000, which was sufficient to provide a surplus over working expenses. When the twentieth century came in 307 miles were being operated. A few months later control was obtained of 350 miles of line in Southern Manitoba that had been built by the Northern Pacific Railway of the United States. In 1902 access to Lake Superior was obtained, and the road was fairly launched on its progress as the second railway in Western Canada with the certainty of becoming a transcontinental.

The main line from Winnipeg to Edmonton (via Portage la Prairie, Gladstone, Dauphin, Humboldt and Battleford) was completed in 1905.

In 1906 by the acquisition of the Qu'Appelle, Long Lake and Saskatchewan Railway entrance was gained to Saskatoon, Regina and Prince Albert. The method of securing control of this line illustrates the enterprise of the Mackenzie-Mann Company. For fifteen years the road had been leased to the Canadian Pacific and everybody thought that the lease would be renewed. One morning Sir Donald Mann got wind of the fact that possibly the lease might go elsewhere. In the afternoon of the same day he had closed the deal involving millions of dollars and had taken over two hundred and fifty miles of very remunerative railway.

In 1907 Regina was connected with Winnipeg and 1908 saw the line from Saskatoon to Calgary begun as well as the first hundred miles on the way to Hudson Bay. Each succeeding year has shown a marked increase in the mileage until to-day 4,552 miles are being operated by the Canadian Northern.

When completed the main line will provide a second transcontinental. Its eastern terminals will be Pugwash, N.S., and St. John, N.B. Proceeding westward from Pugwash the line crosses the southern end of New Brunswick, passing through Moncton and Fredericton, from which point a branch runs southward to St. John. From Fredericton the line crosses northern Maine and reaches the St. Lawrence River at Levis opposite Quebec. The bridge now under construction near that city

will afford access to the northern shore of the river along which the line continues to Montreal. Westward to North Bay it parallels the Canadian Pacific. At this point it swings to the north and runs through northern Ontario about 50 miles north of the Canadian Pacific (main line) until it reaches Nipigon. Thence to Fort William it runs close to the same line. Through Rainy River District the line is close to the international boundary, which is crossed south of Lake of the Woods, and for a short distance traverses Minnesota, entering Manitoba at the south-east corner and on to Winnipeg. From Winnipeg the main line runs *via* Portage la Prairie, Gladstone, Dauphin, Humboldt and Battleford to Edmonton. From this point it will run to Port Mann, B.C., *via* the North Thompson and Fraser Valleys.

With the completion of the line between Edmonton and Vancouver, and another stretch between North Bay and Ottawa, both of which are well under way, the Canadian Northern will be able to go under its own steam from tide water to tide water. Until the completion of the bridge across the St. Lawrence at Quebec that city will be the eastern terminal.

In Ontario the Mackenzie-Mann interests have been very active. One line runs northward from Toronto for more than three hundred miles to Moose Mountain iron mines by way of Key Harbor on Georgian Bay. Another line extends eastward to Ottawa and Montreal. In order to secure an entrance to Montreal a tunnel is being constructed through Mount Royal at an estimated cost of thirty million dollars. In addition to the line from Ottawa to Montreal and Quebec an important branch runs northward tapping the Lake St. John district.

In Nova Scotia the Halifax and South Western (now owned by Mackenzie-Mann) connects Halifax and Yarmouth. It also crosses the province to the Bay of Fundy and has a branch down the Annapolis Valley.

Like its rival the Canadian Pacific it has not stopped with the shores. In addition to boats on inland waters two fine ocean liners—the *Royal Edward* and the *Royal George*—plying between Bristol and Montreal, fly the Canadian Northern colours.

The story of the Canadian Northern is the story of two of the most picturesque and constructive figures in the Dominion—Mackenzie and Mann, both of whom are Ontario born. Single-handed they have built the Canadian Northern system, a performance without a precedent in the annals of railway construction. And what is equally remarkable they still own it. It is a rare thing to find the actual builder become the owner. Generally the speculator outgenerals the man who drove the spike. So it was with the Union Pacific and other systems, but this extraordinary pair have developed a vast " made and operated in

Canada" property. A comparison with the other two Canadian transcontinental lines will show this.

The Canadian Pacific, save for what was contributed by the daring Strathcona, was built and is operated by Yankee brains. Both Sir William Van Horne and Sir Thomas Shaughnessy, despite the handles to their names, are American born and bred, and graduates of the Chicago, Milwaukee and St. Paul. The Grand Trunk was brought to its present high standard of efficiency by the late Charles M. Hays, who was American also. It was in his fertile mind, we shall see, that the Grand Trunk Pacific originated.

Mackenzie and Mann afford a spectacle of splendid team work. They supplement each other much as the blades in a pair of shears. Yet they are exactly opposite in temperament. Sir William Mackenzie is the financial genius of the combination, while Sir Donald Mann's work has been that of the builder. His judgment is almost unerring. Before he built the road from Calgary to Edmonton, it is said he rode over the rough country once, and his estimate of the cost per mile was only $23 less than the actual price of construction. He has had no technical training, yet he is said to be one of the best engineers in Canada.

Mackenzie is the in-door man of the combination. His place is at the leather-topped boards where millions talk. In Lombard Street and along the money lanes of the world they know him well. He always returns from England full-handed; and the reason is, once he starts out to get a thing he never lets up. He has led many a forlorn financial hope to triumphant conclusion. He does not know what the word surrender means.

The Grand Trunk Pacific.—As previously stated it is largely due to the efforts of the late Charles M. Hays, president of the Grand Trunk, that the third transcontinental was undertaken. The Grand Trunk approximated between 6,000 and 7,000 miles of railway and spread to every corner of Southern Ontario, but it was insulated. Rival lines had been permitted to spring into existence and to form a barrier on all sides, hemming in the pioneer line. A great proportion of the revenue accruing from through transportation of passengers and merchandise had to be paid out to competing lines for the conveyance to points beyond the zone in which the older lines operated. The effect of this disadvantage was very heavy, as the West with its enormous traffic was forging ahead rapidly and here the Grand Trunk had no lines. The encircling competitive and strangling barrier of lines must be broken down, and the necessity for handing traffic over to rivals must be reduced to a minimum. They were in touch already with the Atlantic and why should they not have an arm resting on the Pacific?

Mr. Hays suggested the building of a new transcontinental railway, stretching from coast to coast, running through new territory entirely and capable of being linked up very easily with the network in Southern Ontario. At the same time he emphasised the necessity for establishing a new port on the Pacific which would offer unrestricted scope for future developments. The Canadian Government looked with favour upon the proposal, and in October, 1903, the Grand Trunk Pacific was incorporated and an agreement entered into between the Company and the Dominion Government to construct a line from Moncton, N.B., to Prince Rupert, B.C., wholly within Canadian territory.

The railway comprises two grand divisions, namely, the Eastern Division and the Western Division.

The Eastern Division embraces the 1,804 miles between Moncton and Winnipeg. After leaving Moncton the railway has to follow a somewhat circuitous route through New Brunswick in order to gain Quebec, owing to the State of Maine thrusting its boundary so far northward towards the St. Lawrence River. Had it been possible to cut across this intercepting territory the mileage between the Atlantic seaboard and the river ports would have been reduced very materially, but the line was advocated as an "All-Red Route", and consequently it was forced to make a huge bend to skirt the political obstruction. When it crosses the St. Lawrence, which it does a few miles above Quebec, it runs north-west, passing through an absolutely virgin country for about 1,300 miles, where lumber, minerals and land adapted admirably for diversified farming exist in abundance. Westward from Lake Nipigon for a distance of 200 miles to the prairie is an unproductive stretch. The main line of this Eastern Division will be constructed by and at the cost of the Canadian Government, under the supervision of the Commissioners of the Transcontinental Railway, and upon completion will be leased to the Grand Trunk Pacific for a period of 50 years on terms that have been clearly defined. A branch from the main line running in a south-easterly direction to Port Arthur, where connection is made with the boats for Georgian Bay and Lake Huron ports, is now completed and being operated.

The Western Division—Winnipeg to Prince Rupert, with branches, —will be built by the Company, the Canadian Government guaranteeing the principal and interest for 50 years of three-quarters of the cost of the main line from Winnipeg to the coast. The main line mileage is 1,755 miles. West of Winnipeg a vast treasure-house of grain is threaded for a thousand miles. It is estimated that there are between 200,000,000 and 300,000,000 acres of land suited to grain raising between Ontario's western boundary and the Rockies. Seeing that the Canadian Pacific

draws a large proportion of its revenue from about 7,000,000 acres it will be recognized that there is room for the Grand Trunk Pacific, as well as the Mackenzie-Mann road. Upon leaving the Central Plain there intervenes about 170 miles lying among the mountains which are crossed at Yellowhead Pass, 50° north latitude. This pass has an elevation of 3,723 feet, being the lowest level at which this range is crossed by any railway. The Canadian Pacific has to climb to a height of 5,329 feet to get over the same wall in Kicking Horse Pass, and 4,427 in Crow's Nest, while the Union Pacific, the first transcontinental, toils to a height of 8,710 feet to overcome the selfsame barrier.

Beyond the Rockies is another excellent agricultural area for 450 miles, terminated by the Cascade Mountains. West of the Cascades the line for the last 100 miles follows the Skeena River to Prince Rupert. The territory, in addition to being rich in minerals, is said to be well adapted to fruit growing. For the sixty miles next the Pacific Coast the grade does not rise an inch, the line being as level as the proverbial billiard table. There is not a foot of what is known as surface line. The engineer has had to trim back the mountains where they kiss the river, hewing a narrow shelf twenty feet above high-water mark out of the solid rock.

In addition to Winnipeg, Portage la Prairie, Saskatoon and Edmonton (all on the main line), Brandon, Regina, Prince Albert, Battleford, Lethbridge, Calgary, Victoria and Vancouver will be reached by branch lines either under construction or proposed. A subsidiary company controls a fleet of modern steamships operating on the Pacific Coast between Prince Rupert, the western terminal of the railway, and Vancouver, Victoria, Seattle and other Pacific ports.

In addition to the five lines already described there are the Canada Southern crossing the Lake Erie counties, the Temiskaming and Northern Ontario, from North Bay to Cochrane, and others of more or less importance, making up about five per cent. of Canada's total mileage. Then, too, there are branches of the Great Northern and Northern Pacific crossing the forty-ninth parallel and tapping the southern portion of Western Canada.

There are, also, some fifty-four electric lines, varying in length from one and a quarter miles to two hundred and eighty-seven, with a total of 1,723 miles. Up to the present the application of electricity for traction power has been for local and suburban lines or for hauling trains through tunnels, to avoid the trouble and discomfort from the smoke and gases of the steam engine.

Then there is the Hudson Bay Railway now under construction. This is one of the most daring ventures in railway construction in the

history of our country. No other such line has been built. Hudson Straits are said to be impassable for eight months in the year, but Liverpool is one thousand miles nearer the wheat fields of Saskatchewan and Alberta than by way of Montreal, and for the sake of what can be carried during the four open months the Canadian Government proposes to spend $25,000,000 to provide a new outlet.

How have these 27,000 miles of railway been built? Who is behind the venture and where did the money come from? The railways of Canada are worth one and a half billion dollars. Out of the national treasury were given money and lands with which the lines might be started, and contributions have been from three sources. The Dominion has given 154 million dollars, the various provinces 36 millions and the municipalities 18 millions; a total of 208 millions in cash subsidies. In addition to this land grants to the extent of 56 million acres have been made. Some slight indication of the value of these lands may be obtained from the fact that during 1911 the Canadian Pacific sold 975,030 acres of land for $14,469,445, or an average of nearly $15 an acre.

In recent years the assistance has taken the form of guarantees as opposed to cash or land grants. It is estimated that through guarantees, cash subsidies and grants of land the Canadian people have fed their railways with over half a billion dollars and fifty-six million acres of land.

As a whole the service of the railways has been helpful and efficient, but occasionally there seems to be a tendency on the part of the railways to act arrogantly in their relations to private property and to exercise a monopolistic desire in the matter of freight rates. Fortunately for the people the appointment of a Board of Railway Commissioners—an independent and permanent tribunal—in 1904, to stand guard for the public rights in all matters of railroad development and regulation, has proven to be a most helpful piece of railroad legislation and much is expected from that body in maintaining the rights of the people.

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